Salinity tolerance of the invasive lionfish, *Pterois volitans* (USGS Peninsular Florida LCC funds)

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Overview: Lionfish are currently established along the Atlantic coast of the Southeastern USA and throughout the Caribbean and are currently invading the Gulf of Mexico and the coastal reefs of South America; several National Parks are currently in the process of invasion (e.g., Virgin Islands, Biscayne, Everglades, Dry Tortugas). There is great concern that lionfish will impact our national trust lands, should they invade and establish. The potential impacts of lionfish are far reaching, including alteration reef fish communities, drastic reduction in biodiversity, and cascading trophic impacts. Although invasion of coral reef habitats seems imminent, it is unclear whether lionfish will also be able to inhabit estuarine habitats. It is important to determine the tolerance of lionfish to salinities that are both lower and higher than normal marine waters (35 ppt). If they are tolerant of low salinities, lionfish could spread into nearshore estuarine waters of the Gulf of Mexico and along the Atlantic coast from Florida to North Carolina. Additionally, if they are tolerant to high salinities, they could use regions of Florida Bay that experience seasonal hypersalinity.

Project Objective: This study will answer the following questions:

1. How long are lionfish expected to survive at each salinity tested?

2. How well do lionfish grow at these salinities? Are there differences in growth rate among salinities?

3. Does body size affect survival time for lionfish?

Deliverables: Final report – to be delivered no later than October 1, 2011. The final report will serve as the basis for a chapter in the Ph.D. dissertation of Dane Huge and will also be published as a peer-review journal article.

Timeline:

January 2011 – March 2011	Lab set up, purchasing of supplies, literature review
March 2011 – May 2011	Fish collection
May 2011	Fish quarantine
May 2011 – July 2011	Salinity shifts (from 35 ppt to target salinities)
July 2011 – August 2011	Experimental observations (survival)
August 2011 – September 2011	Data analysis and report writing
October 2011	Draft report due to NPS